Operation - Parts

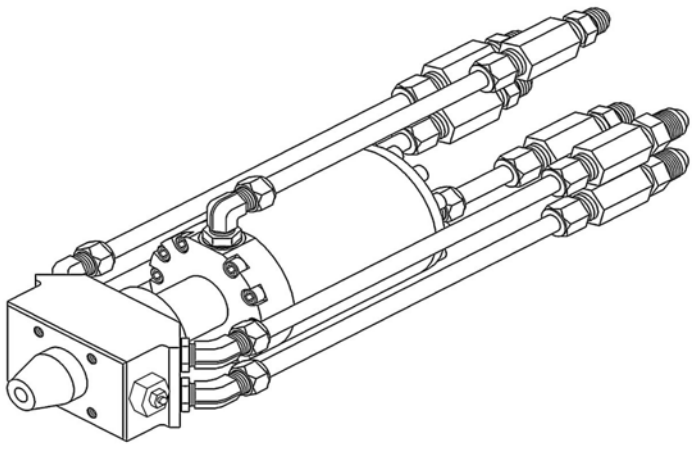
S-Head

312752C

For dispensing Polyol and Isocyanate.

3000 psi (20.68 MPa, 206.8 bar) Maximum Working Pressure

Important Safety Instructions
Read all warnings and instructions in this manual.
Save these instructions.



PROVEN QUALITY. LEADING TECHNOLOGY.

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Models

Model	Stroke (in.)	Maximum Working Pressure psi (MPa, bar)
30110-500-2	2.25	3000 (20.68, 206.8)
30110-500-4	4.00	3000 (20.68, 206.8)
30110-625-2	2.25	3000 (20.68, 206.8)
30110-625-4	4.00	3000 (20.68, 206.8)

Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbol refers to procedure-specific risk. Refer back to these warnings. Additional, product-specific warnings may be found throughout the body of this manual where applicable.

⚠ WARNING

TOXIC FLUID OR FUMES HAZARD

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled, or swallowed.

- Read MSDS's to know the specific hazards of the fluids you are using.
- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.
- Always wear impervious gloves when spraying or cleaning equipment.

PERSONAL PROTECTIVE EQUIPMENT

You must wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect you from serious injury, including eye injury, inhalation of toxic fumes, burns, and hearing loss. This equipment includes but is not limited to:

- Protective eyewear
- Clothing and respirator as recommended by the fluid and solvent manufacturer
- Gloves
- Hearing protection

SKIN INJECTION HAZARD

High-pressure fluid from dispense valve, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. **Get immediate surgical treatment.**

- Do not point dispense valve at anyone or at any part of the body.
- Do not put your hand over the end of the dispense nozzle.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Follow **Pressure Relief Procedure** in this manual, when you stop spraying and before cleaning, checking, or servicing equipment.

FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, in **work area** can ignite or explode. To help prevent fire and explosion:

- Use equipment only in well ventilated area.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static arc).
- Keep work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- Ground all equipment in the work area. See **Grounding** instructions.
- Use only grounded hoses.
- Hold gun firmly to side of grounded pail when triggering into pail.
- If there is static sparking or you feel a shock, **stop operation immediately.** Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.

⚠ WARNING

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See **Technical Data** in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS forms from distributor or retailer.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

MOVING PARTS HAZARD

Moving parts can pinch or amputate fingers and other body parts.

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** in this manual. Disconnect power or air supply.

Isocyanate Hazard

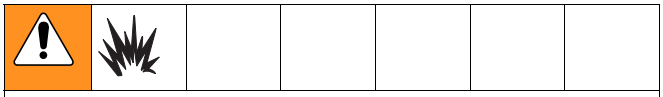
Spraying materials containing isocyanates creates potentially harmful mists, vapors, and atomized particulates.

Read material manufacturer's warnings and material MSDS to know specific hazards and precautions related to isocyanates.

Prevent inhalation of isocyanate mists, vapors, and atomized particulates by providing sufficient ventilation in the work area. If sufficient ventilation is not available, a supplied-air respirator is required for everyone in the work area.

To prevent contact with isocyanates, appropriate personal protective equipment, including chemically impermeable gloves, boots, aprons, and goggles, is also required for everyone in the work area.

Material Self-ignition



Some materials may become self-igniting if applied too thickly. Read material manufacturer's warnings and material MSDS.

Moisture Sensitivity of Isocyanates

Isocyanates (ISO) are catalysts used in two component foam and polyurea coatings. ISO will react with moisture (such as humidity) to form small, hard, abrasive crystals, which become suspended in the fluid. Eventually a film will form on the surface and the ISO will begin to gel, increasing in viscosity. If used, this partially cured ISO will reduce performance and the life of all wetted parts.

The amount of film formation and rate of crystallization varies depending on the blend of ISO, the humidity, and the temperature.

To prevent exposing ISO to moisture:

- Always use a sealed container with a desiccant dryer in the vent, or a nitrogen atmosphere. **Never** store ISO in an open container.
- Keep the ISO lube pump reservoir filled with Graco Throat Seal Liquid (TSL), Part 206995. The lubricant creates a barrier between the ISO and the atmosphere.
- Use moisture-proof hoses specifically designed for ISO, such as those supplied with your system.
- Never use reclaimed solvents, which may contain moisture. Always keep solvent containers closed when not in use.
- Never use solvent on one side if it has been contaminated from the other side.
- Always park pumps when you shutdown.
- Always lubricate threaded parts with ISO pump oil or grease when reassembling.

Keep Components A and B Separate

CAUTION
To prevent cross-contamination of the equipment's wetted parts, **never** interchange component A (isocyanate) and component B (resin) parts.

Foam Resins with 245 fa Blowing Agents

New foam blowing agents will froth at temperatures above 90°F (33°C) when not under pressure, especially if agitated. To reduce frothing, minimize preheating in a circulation system.

Changing Materials

- When changing materials, flush the equipment multiple times to ensure it is thoroughly clean.
- Always clean the fluid inlet strainers after flushing.
- Check with your material manufacturer for chemical compatibility.
- Most materials use ISO on the A side, but some use ISO on the B side.
- Epoxies often have amines on the B (hardener) side. Polyureas often have amines on the B (resin) side.

Component Identification

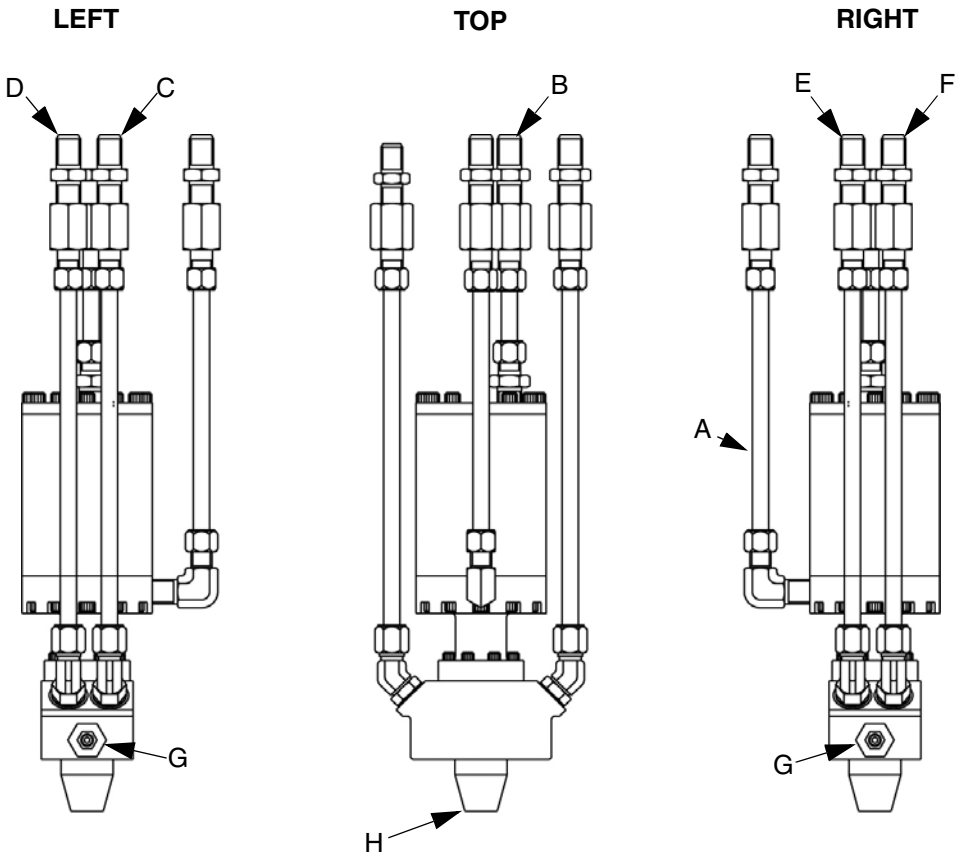


FIG. 1

Key:

A Hydraulic-open
B Hydraulic-close
C Isocyanate supply
D Iso-return
E Polyol supply
F Polyol return
G Nozzle Assembly
H Pour Nozzle

Within each nozzle assembly, there is an injection nozzle and needle valve kit (101) where the chemicals are introduced into the mixing chamber. In the mixing chamber, the two chemicals are impinged against each other causing the mixing of the two components.

After dispensing is finished, the valving rod is hydraulically driven forward to the “closed” position to completely remove mixed material from the mixing chamber. There is no need for additional cleaning.

With the valving rod closed, the fluid circulates from the supply lines directly to the return lines. This creates continuous circulation of conditioned material through the MixHead and back to the tank.

Installation

Mounting

Use the bolt pattern provided on the front face of the gun block for mounting. Never use any of the assembly bolts for mounting purposes.

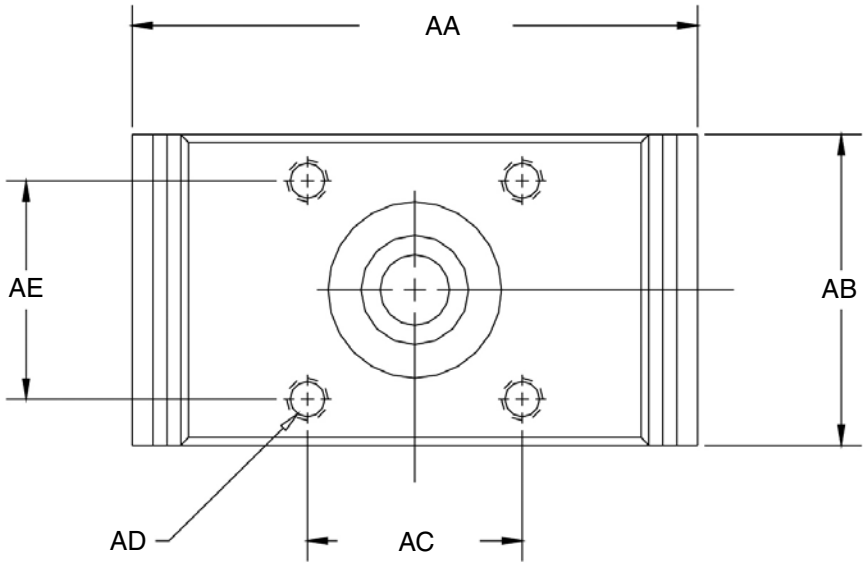
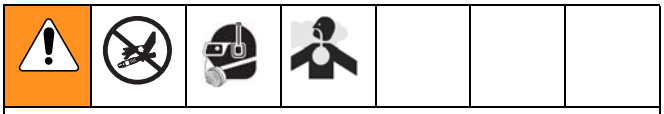


FIG. 2

Key:
AA 5.096 in. (129.44 mm)
AB 2.7550 in. (69.98 mm)
AC 1.9360 in. (49.17 mm)
AD 3/8-16 x 0.875 in. deep
AE 1.9360 in. (49.17 mm)

Operation



Do not come into contact with Isocyanate. See **Isocyanate Hazard** on page 5.

1. Ensure that a nozzle assembly with appropriate size orifice is installed. See **Orifice Size Selection** section on page 13.
2. Turn on material pumps so that material will begin to flow through the MixHead.
3. Rotate the injection adjustment screw to adjust chemical pressures. If the injection adjustment screw (104) is locked in position, break loose the hex locknut (103) from the injection nozzle retainer (102) to free the adjustment screw.

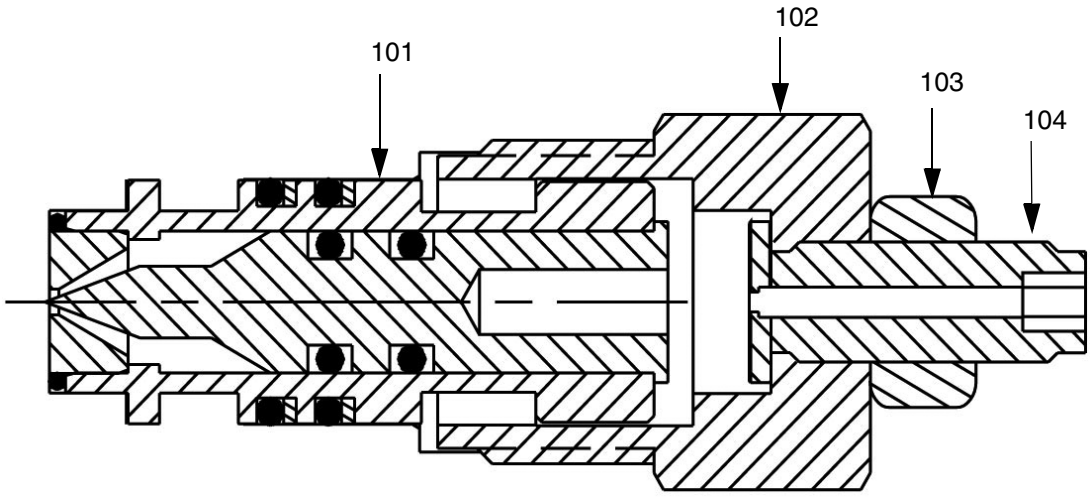
Pressure setting is an operator adjustment and mixing pressures for of 2000-2200 psi (13.5-15.0 MPa, 135-150 bar) are recommended. Contact your chemical system supplier for more detailed information.

4. Tighten the hex locknut (103) against the injection nozzle retainer (102). This will lock the injection adjustment screw position.

CAUTION

Do not over-adjust the injection adjustment screw and close the needle valve into the orifice of the needle housing. This will damage the injection needle and orifice.

Do not use the needle valve as a shutoff valve.



Key:
101 Injection Nozzle and Needle Valve Kit
102 Injection Nozzle Retainer
103 Hex Locknut
104 Injection Adjustment Screw

FIG. 3: Nozzle Assembly

Maintenance

When using MixHead, be careful to avoid damaging precision tip. Return MixHead to Graco once a year for maintenance.

Nozzle Assembly

Shut off all power. Bleed the chemical, hydraulic, and tank pressures to zero pressure.

CAUTION

Relieving pressure will expose chemicals to moist air. See **Moisture Sensitivity of Isocyanates** on page 5 for the effects of exposing chemicals to moist air.

Tools Required

- 1 in. wrench
- 3/8 in. wrench
- 5/32 hex key
- Brass wire brush
- O-ring pick
- Needle extracting tool

Disassembly

1. Use a 1 in. open-end wrench to unscrew the injection nozzle retainer (102) from the MixHead body.
2. Rotate injection nozzle and needle valve kit (101) counter clockwise to remove from injection nozzle retainer (102).
3. Using a 3/8 in. wrench and a 5/32 hex key, remove hex locknut (103) and injection adjustment screw (104) from injection nozzle retainer (102).
4. Remove needle (206) from needle housing (205).

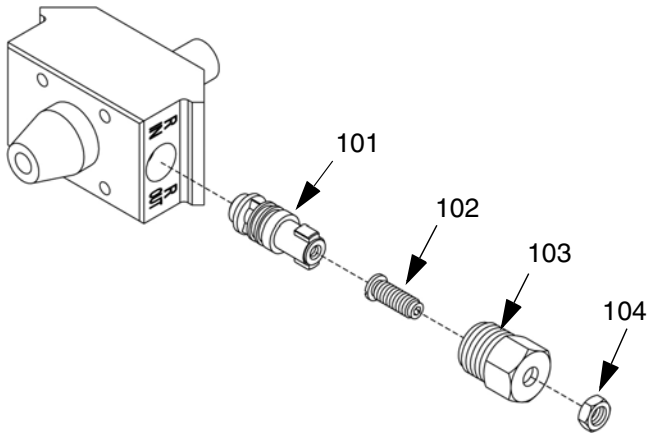
See FIG. 4 on page 12.

   a. Thread 1/4-20 bolt into rear of needle (206).
   b. Holding on to 1/4-20 bolt, pull needle (206) out rear of needle housing (205). See FIG. 4 on page 12.
5. Use an o-ring pick to remove o-rings.

CAUTION

DO NOT soak the o-ring in cleaning solvents as they will swell and be unusable.

6. Use a brass, wire brush to clean metal parts as necessary.
7. Inspect the o-rings and replace with new ones as required.



Key:
101 Injection Nozzle and Needle Valve Kit
102 Injection Nozzle Retainer
103 Hex Locknut
104 Injection Adjustment Screw

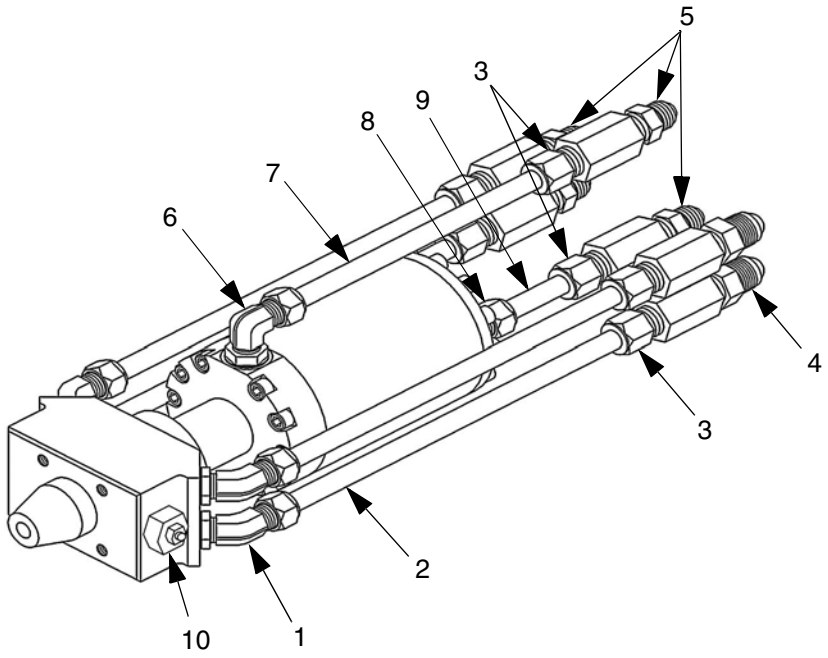
Reassembly

1. Install the o-rings with a liberal amount of silicone grease.
2. Install the needle (206) into the needle housing (205).

CAUTION
The needle valve and needle housing are matched and these parts must not be used interchangeably.

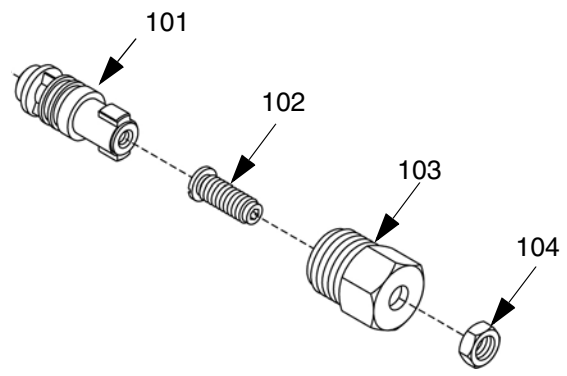
3. Install the nozzle assembly into the MixHead body.

Parts



Ref	Part	Description	Qty
1	6306-110	ELBOW; 45 deg., SAE 08 X 1/2 tube, mf	4
2	20163-4	TUBE; 1/2 in.	4
3	6306-61	ADAPTER; 1/2 npt x 1/2 tube, ff	6
4	94/1013/99	ADAPTER; JIC 10 X 1/2 NPT, ms	2
5	1508-3	NIPPLE; 1/2 mpt x 3/4-16 JIC	4
6	5514-6	3/4 O-RING X 1/2 TUBE, 90 elbow	1
7	20163-3	TUBE; hydraulic (open)	1
8	6306-79	TUBE; 3/4-16 o-ring x 1/2	1
9	20162-4	TUBE, hydraulic (closed)	1
10		NOZZLE, assy.	2

Nozzle Assembly



Ref	Part	Description	Qty
101	(see p. 12)	KIT, injection nozzle and needle valve	1
102	30150-24-4	SCREW, adjustment, injection	1
103	30150A-25	RETAINER, injection nozzle	1
104	30150-23	NUT, hex, 3/8-40	1

Injection Nozzle and Needle Valve Kits

Kit	Orifice size (mm)
24A036	Calibrate
24A037	0.25
24A038	0.35
24A039	0.50
24A040	0.60
24A041	0.70
24A042	0.80
24A043	0.90
24A044	1.00
24A045	1.10
24A046	1.20
24A047	1.30
24A050	1.40
24A051	1.50
24A052	1.60

Kit	Orifice size (mm)
24A053	1.70
24A054	1.80
24A055	1.90
24A056	2.00
24A057	2.50
24A058	3.00
24A059	3.50
24A060	4.00
24A061	4.20
24A062	4.50
24A063	5.00
24A064	5.50
24A065	6.00
24A066	6.50
24A067	7.00

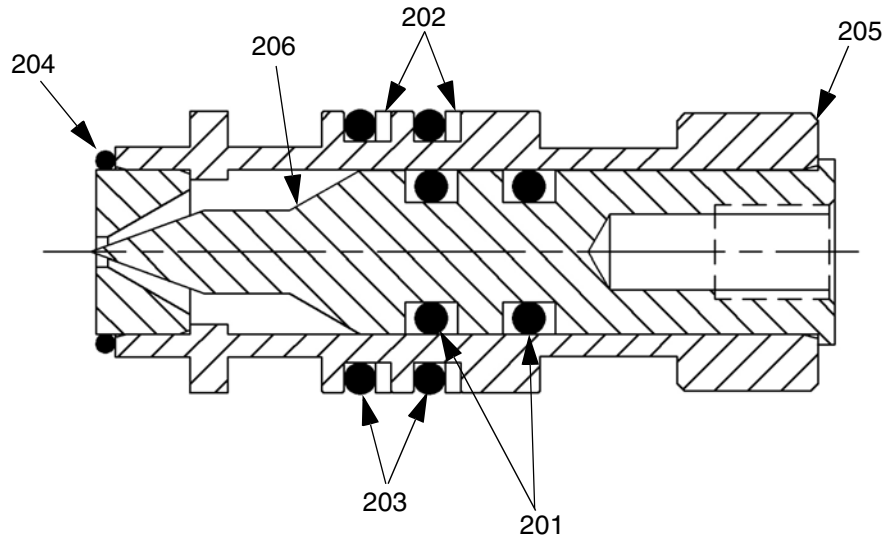


FIG. 4

Ref	Part No.	Description	Qty
201	0135-108	O-RING; fluoroelastomer	2
202	0137-016	RING; back-up, PTFE	2
203	0485	O-RING; fluoroelastomer	2
204	9405	O-RING; fluoroelastomer	1
205	30150A-24-1	HOUSING; needle	1
206		NEEDLE	1

Orifice Size Selection

This section is provided to approximate an effective orifice size for a given application. There is no guarantee that this formula will provide the correct orifice size.

Use the following equation to find a suggested orifice size for your application.

$$D = \sqrt{(F / 0.324)} \times \sqrt{(P \times Sg \times 62.4)}$$

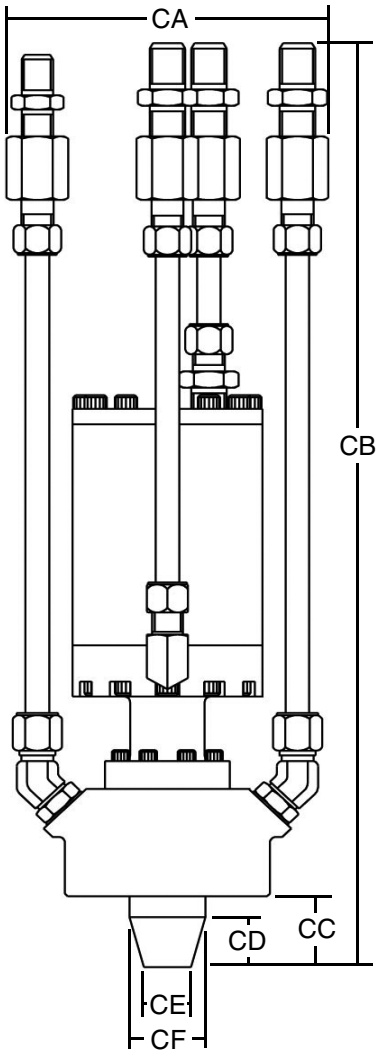
D = Orifice Diameter (mm)
F = Flow through orifice (pounds / second)
P = Dispensing Pressure for Chemical (psi)
Sg = Specific Gravity of Chemical

The calculated “D” is the suggested orifice size in millimeters. Round to the nearest available orifice size listed on page 12.

Technical Data

Max Weight	*2.25 in. Stroke Models:* 27 lb (12.25 kg) *4 in. Stroke Models:* 33 lb (14.97 kg)
Wetted Parts	Stainless Steel, Trivalent Chromium Plated Carbon Steel, PTFE, Perifluorinated & EPDM O-rings

Dimensions



	2.25 in. Stroke Models		*4 in. Stroke Models*	
Ref	**in.**	**mm**	**in.**	**mm**
CA	6.74	171.1	6.74	171.1
CB	18.84	478.4	23.41	594.6
CC	1.56	39.7	3.50	39.7
CD	1.14	29.0	1.14	29.0
CE	0.97	24.6	0.97	24.6
CF	1.56	39.6	1.56	39.6

FIG. 5

Graco Ohio Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

THIS WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Graco's sole obligation and buyer's sole remedy for any breach of warranty shall be as set forth above. The buyer agrees that no other remedy (including, but not limited to, incidental or consequential damages for lost profits, lost sales, injury to person or property, or any other incidental or consequential loss) shall be available. Any action for breach of warranty must be brought within two (2) years of the date of sale.

GRACO MAKES NO WARRANTY, AND DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, IN CONNECTION WITH ACCESSORIES, EQUIPMENT, MATERIALS OR COMPONENTS SOLD BUT NOT MANUFACTURED BY GRACO. These items sold, but not manufactured by Graco (such as electric motors, switches, hose, etc.), are subject to the warranty, if any, of their manufacturer. Graco will provide purchaser with reasonable assistance in making any claim for breach of these warranties.

In no event will Graco be liable for indirect, incidental, special or consequential damages resulting from Graco supplying equipment hereunder, or the furnishing, performance, or use of any products or other goods sold hereto, whether due to a breach of contract, breach of warranty, the negligence of Graco, or otherwise.

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Graco Ohio Information

For the latest information about Graco products, visit www.graco.com.

TO PLACE AN ORDER, contact your Graco distributor or call to identify the nearest distributor.
Toll Free: 1-800-746-1334 **or Fax:** 330-966-3006

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Graco Headquarters: Minneapolis
International Offices: Belgium, China, Japan, Korea

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www.graco.com
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